Climate Change, Well-being, and Carbon

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According to the Pew Research Center nearly half of American adults say "climate change is due to human activity." A similar percentage say Earth's warming is entirely natural or that there is no evidence of warming.[1] It is part of the Great Schism Trend, about which I have written in these pages many times.

Belief in climate change very strongly correlates with political beliefs. As Pew says, "On all of these matters there are wide differences along political lines with conservative Republicans much less inclined to anticipate negative effects from climate change or to judge proposed solutions as not likely to make much difference in mitigating any effects. Half or more liberal Democrats, by contrast, see negative effects from climate change as very likely and believe an array of policy solutions can make a big difference."[2] And that is the way the argument usually plays out.

Donald Trump on November 2, 2012 tweeted: "The concept of global warming was created by and for the Chinese in order to make U.S. manufacturing non-competitive."

On October 19, 2015, he then tweeted: "It's really cold outside, they are calling it a major freeze, weeks ahead of normal. Man, we could use a big fat dose of global warming!"[3]

In 2016 he said, "Well, I think the climate change is just a very, very expensive form of tax. A lot of people are making a lot of money.

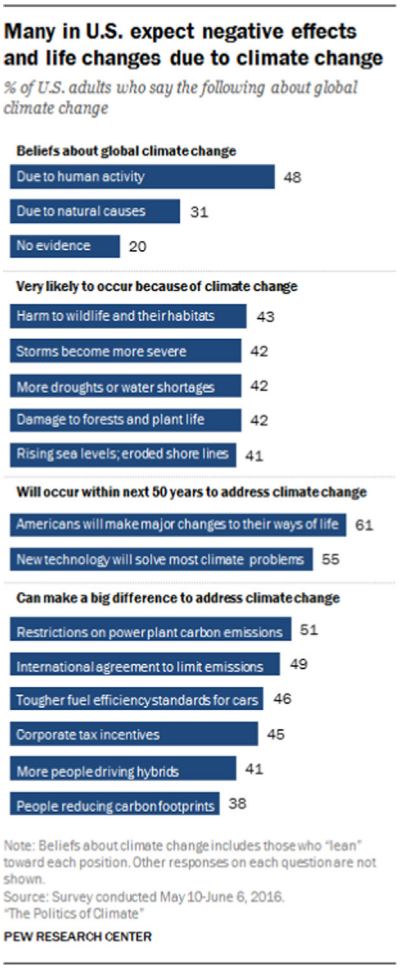
"I know much about climate change. I'd be—received environmental awards. And I often joke that this is done for the benefit of China. Obviously, I joke. But this is done for the benefit of China, because China does not do anything to help climate change. They burn everything you could burn; they couldn't care less. They have very—you know, their standards are nothing. But they—in the meantime, they can undercut us on price. So it's very hard on our business."[4]

Magnifying these views, Trump has staffed his cabinet and the federal agencies with men and women who reflect his perspective. Many are former lobbyists who worked against the department or agency they now head; one example being Scott Pruitt head of the EPA. Congress has also played its role. In July the House of Representatives voted to approve a large spending bill for fiscal 2018. One of its major features was its support for carbon energy while, at the same time, notably and drastically cutting support for non-carbon energy.

Ohio Republican Representative Steve Stivers proposed and the House approved an amendment prohibiting the Energy Department from going ahead with a large pilot offshore wind project. At the same time the Advanced Research Projects Agency-Energy that helps develop and commercialize new energy technologies, was eliminated by cutting off all its funding.

And if that were not enough, on a party line vote, the House approved an amendment proposed by Republican Representative Paul Gosar of Arizonia "to prohibit the use of funds to prepare, propose, or promulgate any regulation or guidance related to the social cost of carbon."[5] No facts, please, to disturb our ideological position.

As I am writing this, Pruitt, the EPA head, a former coal lobbyist who sued the EPA multiple times, announced at an event in Hazard County, Kentucky, the heart of the state's coal country, that the administration has just rescinded the Clean Power Plan put forward by the Obama Administration. Pruitt's speech was a completely political act because



The Schwartzreport tracks emerging trends that will affect the world, particularly the United States. For EXPLORE it focuses on matters of health in the broadest sense of that term, including medical issues, changes in the biosphere, technology, and policy considerations, all of which will shape our culture and our lives.

the Clean Power Plan had never actually been active, having been put on hold by the Supreme Court before it went into effect. But the intent of the Obama administration was clear, as is the decision of Trump and Pruitt.

Their decision is not an isolated event. It must be seen in light of the late September 2017 decision of Energy Secretary Rick Perry who decided to back nuclear power and coal over alternatives, as signaled by a $3.7 billion commitment to sustain two failing nuclear reactor projects, and by redefining how coal production and nuclear projects are compensated for their electricity. The Perry action is very deliberately designed to tip the scale in favor of carbon energy and against non-carbon, non-nuclear energy technologies.[6] This is not a small matter. As the *Washington Post* reported, "I think this is the most significant electricity policy action in 20 years," said Rob Gramlich, who works for renewable energy clients through his consulting firm Grid Strategies LLC… ."[7] Once again in this administration, ideology triumphs over facts.

The Clean Power Plan was created to emphasize non-carbon energy; that is true. But it was not an ideological policy in the sense of favoring a particular corporate sector which already had billions invested. It was a policy designed to produce social wellbeing, not one created by corporate lobbying. It was based on healthcare outcome data, which made it clear that while coal generated approximately 40% of the world electrical generation, it produced in excess of 70% of the carbon dioxide.[8] Most of the rest—27%—being caused by transportation petroleum combustion.[9] And like all wellness oriented policies it was also going to be much cheaper than the profit first policies then in effect. The distortion of the climate brought about by a massive amount of CO_2 discharged into the atmosphere by carbon energy is currently costing the societies of the earth trillions of dollars. In the United States alone it runs to hundreds of billions.

In 2016 air pollution cost $131 billion, and that was good news.[10] Fourteen years earlier in 2002 it cost $175 billion.[11] A majority portion of that directly relates to healthcare costs, something the physicians, nurses and rehabilitation communities know all too well. Coal is expensive in more ways than financial.

A study carried out by Paulina Jaramillo of the Department of Engineering and Public Policy, Carnegie Mellon University, and Nicholas Z. Muller of the Department of Economics, Middlebury College, published in *Energy Policy* in 2015, really examined carbon air pollution and the damage to wellness it causes. It did this by data in a very comprehensive way from 2002 to 2011. This revealed that in previous studies there had been a systemic erroneous assumption that had hidden a previously unrecognized variable.

About this variable they said, "The results of this analysis highlight the spatial heterogeneity of the impacts associated with the emissions of a given pollutant. In the past, environmental regulations have assumed that the benefits of air emissions reductions are homogenous across source location."

Chelsea Harvey, in *The Washington Post*, described it very clearly. "By mapping out their results … the researchers found that Indiana, Ohio and Pennsylvania seem to consistently experience the greatest damages—and that's likely because there's a significant amount of coal-fired power generation going on in those states…."[12]

Jaramillo and Mueller, considering that, suggested that carbon dioxide policies in the future, "account for spatial differences in the impacts of air emissions which could result in more effective environmental regulation. Accounting for such spatial heterogeneity in the benefits of policies would be akin to accounting for differences in compliances costs across states, which the EPA did when establishing the state emissions standards for the Clean Power Plan rule."

That is all gone now, like the terrabytes of climate data stripped from Federal agency websites. We are in a new era, and as a country we do not seem to fully comprehend that. The Executive Branch and the Legislature are dominated by one party, the Republicans, and that means the regulatory agencies which directly address climate change are dominated in the same way. I think I am safe in saying that we will see an increase in health costs in those areas were coal burning continues or increases, and I am not alone.

A 2015 analysis done by the then fact-based EPA of the Obama administration found that by 2030 it was projected that "there would be 3600 more premature deaths; 17,000 more hospitalizations; 90,000 more asthma attacks in kids; and 300,000 missed days of school and work."[13] That was part of the thinking that created the Clean Power Plan. Now that those wellness oriented regulations have been eliminated from ever going into effect, those numbers will only increase. By how much is unclear, but one thing is certain. The pressure on the healthcare community will significantly increase.

In fact, I think the data is telling us that under the current administration climate change very specifically is not a priority. It is not even acknowledged as a real thing. That reality is going to determine how the United States deals with climate change and, as I hope I showed with this discussion of the changing coal policies, that has profound healthcare implications.

When you think about climate change and what it might bring, how do you picture it in your mind? If you are part of the healthcare community how do you see it impacting your life?

For most people it is an abstraction. Of those who do see climate change as human mediated, approximately four-in-ten expect it to impact wildlife, sea-life, shorelines and general weather patterns. Few really grapple with the effects it might have on their life, their activities. But what does that mean? What's it like to actually live in the world science tells us is coming? What should we focus on? What goal should guide us? I think we should focus on wellbeing because that will have the added benefit of preserving a civilization based on democracy. One thing is sure, based not on speculation but data: wellness oriented policies are easier to implement, more productive, more efficient, more pleasant to live under, and much much cheaper, than the alternatives.[14]

A large part of this is going to involve healthcare. We know that. The data is very clear about it. But if you are a healthcare planner, I think it would be prudent to also consider that the illness

profit system than passes for healthcare in the United States will, just as climate change is increasingly stressing the system, be degraded from its already low ranking, as well as becoming much more expensive, with fewer people covered. That is the current trend. I have written about this at considerable length in *Explore,* so I'll just give one example of what I mean.[15]

According to the Association of American Medical Colleges Report, *The Complexities of Physician Supply and Demand: Projections from 2013 to 2025*, "Demand for physicians continues to grow faster than supply, leading to a projected shortfall of between 46,100 and 90,400 physicians by 2025."[16]

This is not spread equally across medicine. A study by the Commonwealth Fund reported, "Projected shortfalls in primary care will range between 12,500 and 31,100 physicians by 2025, while demand for non-primary care physicians will exceed supply by 28,200–63,700 physicians."[17]

These shortages are becoming increasingly acute in rural areas where more than 20% of the U.S. population resides but only 10% of physicians practice. Much of this is due to the current administration's immigration policies which have sharply reduced the number of immigrant physicians, who are disproportionately represented in rural hospitals, according to the Association of American Medical Colleges.[16]

But it isn't just staff infrastructure. As of October 12th the Federal government will no longer underwrite health insurers that provide coverage to low income Americans. What is known as cost-sharing reduction—CSR—payments will cease, as will the insurance industry's incentive to provide such policies. Many feel it may destabilize markets across the country.[18]

This could either be disastrous, or my fantasy could come true and the pain caused by the current administration's policies could, in the 2018 elections, result in a national publicly funded universal medicare system oriented to individual and social wellness not profit. We spend multiples of what any other developed nation in the world spends and we rank 37th.[19] I do not understand why we are not ashamed of that. If we could do as well as Norway, which ranks 11th and spends 7.6% of its GDP on healthcare, while we spend 17.6% to rank 37th, we would save over a trillion dollars a year.

Or maybe that is just my fantasy. What we do know will happen is that climate change is going to accelerate. The bass thrum you hear strengthening in the background are the increasingly disruptive weather trends resulting from a severely disordered climate. It is getting louder very quickly. I have been looking at the trends in climate change data since 1991 and have learned two things for sure. First, the timeline keeps collapsing. Changes predicted to occur 500 years into the future, became 200, then a single century, and now less than that. Second, the anticipated effects keep getting worse, the more we understand what is going on.

As it happens we can see with our own eyes see what we have to plan for. The impact of four hurricanes has devastated Florida, Texas and much of the Gulf Coast as well as all of America's Caribbean territories. By examining what is happening there we can get a baseline calibration of our present capabilities. Just to recapitulate these are the storms.

Houston and the Gulf Coast were hit by Hurricane Harvey on 25 August with winds up to 175 mph. By September 13th a generally acknowledged assessment had been made. The hurricane had caused over $160 billion dollars in damages and involved more than 100,000 homes.

On the 4 September Hurricane Irma, between a category five and four storm, with winds up to 185 mph devastated much of the Caribbean including Puerto Rico.

Less than a month later on 20 September Puerto Rico was hit again by Hurricane Maria, a category four storm with winds of 150 mph.

Collectively these storms have tested our ability to sustain our society. Evaluating what we have done, and why we have or have not done something, I think is essential, because climate change is going to be a constant in our lives from now on. Just weeks after the events studying how we respond to these hurricanes reveals some hidden agendas that are not very pretty.

The results in Houston have been fairly predictable. FEMA is still in Louisiana years after Hurricane Katrina, and Houston seems poised to go down the same track. Puerto Rico and the American Virgin Islands are a radically different story.

In sharp contrast, months later in December less than half of Puerto Rico residents - 46.6% to be precise - have power, and that only thanks to mega-generators brought in the the Army Corps of Engineers. But that is just part of it. It has also taken months to get potable water to people. As of December one-in-10 residents was still without it.

What that tells us, I suggest, is that states which have delegates in the Electoral College get better treatment than territories that do not. It is not fair, everyone involved is an American citizen, but it is the new era reality, as it is playing out on the ground. It is very sad but true that if you are doing emergency healthcare planning at the local level, it is a factor that must be considered.

Politics are going to play a big role in who lives and who dies. Comparing what is happening in Puerto Rico and the American Virginia Islands with what happened in Texas and Florida is a cautionary tale to be studied.

Overall of this hang unanswered questions. With sea rise and increased extreme weather events we are going to see migrations away from the coast. Because of increased temperatures and a lack of water there will be migration out of the Southwest. Increasingly violent tornadoes will reduce populations in the central states. All of this is going to require long term remediation at costs running into the hundreds of billions, perhaps trillions, of dollars. Will the current FEMA structure be able to handle that? Is our healthcare system up to the task?

Climate change is here. We need to answer those questions now.

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